ENVIRONMENTAL ASSESSMENT

for

Section 3 Grazing Permit Authorization

on

Allotment 65007

Township 5 South, Range 25 East
Section 25 - 26 (part), 35 - 36 (part)

Township 5 South, Range 26 East
Sections 31 (part)

Township 6 South, Range 26 East
Sections 1 - 3 (all), 4 (part), 9 - 10 (part), 11 - 15 (all), 16 (part), 23 - 24 (part)

Township 6 South, Range 27 East
Sections 6 -7 (part)

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Bureau of Land Management
Roswell Field Office
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I. BACKGROUND

A. Introduction

When authorizing livestock grazing on public range, the Bureau of Land Management (BLM) has historically relied on a land use plan and environmental impact statement to comply with the National Environmental Policy Act (NEPA). A recent decision by the Interior Board of Land Appeals, however, affirmed that the BLM must conduct a site-specific NEPA analysis before issuing a permit or lease to authorize livestock grazing. This environmental assessment fulfills the NEPA requirement by providing the necessary site-specific analysis of the effects of issuing a new grazing permit on Allotment 65007 Mark Cooper Estate.

The scope of this environmental assessment is limited to the effects of issuing new grazing authorizations on Allotment 65007. Through consultation and coordination with the permittee, the need for subsequent management activities which relate to grazing authorization has been identified. These activities range improvement projects (e.g., fences, water developments), include vegetation treatments (e.g., prescribed fires, herbicide projects), and others. A cooperative management plan identifying common goals, objectives and actions for the allotment has been developed between the BLM and the Mark Cooper Estate. Future rangeland management actions related to livestock grazing would be addressed in project-specific NEPA documents as they are proposed.

Though this environmental assessment specifically addresses the impacts of issuing a grazing authorization on Allotment 65007, it does so within the context of overall BLM management goals. Allotment management activities would have to be coordinated with projects intended to achieve those other goals. For example, a vegetation treatment designed to enhance watershed condition or wildlife habitat may require rest from livestock grazing for one or more growing seasons. Requirements of this type would be written into the permit as terms and conditions.

B. Purpose And Need For The Proposed Action

The purpose of issuing a new grazing permit would be to authorize livestock grazing on public range on Allotment 65007. The permit would be needed to specify the types and levels of use authorized, and the terms and conditions of the authorization pursuant to 43 CFR §§4130.3, 4130.3-1, and 4130.3-2.

C. Conformance With Land Use Planning

The proposed action conforms with the Roswell Approved Resource Management Plan (RMP) and Record of Decision (BLM 1997) as required by 43 CFR 1610.5-3.

D. Relationships to Statutes, Regulations, or Other Plans

The proposed action and alternatives are consistent with the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1700 et seq.); the Taylor Grazing Act of 1934 (43 U.S.C. 315 et seq.), as amended; the Clean Water Act (33 U.S.C. 1251 et seq.), as amended; the Endangered Species Act (16 U.S.C. 1535 et seq.) as amended; the Public Rangelands Improvement Act of 1978 (43 U.S.C. 1901 et seq.); Executive Order 11988, Floodplain Management; and Executive Order 11990, Protection of Wetlands.

II. PROPOSED ACTION AND ALTERNATIVES

A. Proposed Action - Current Livestock Management

The proposed action is to issue the Mark Cooper Estate a ten-year permit to graze cattle on Allotments 65007.

Permitted use would be based on the 1996 grazing permit that authorizes grazing of 106 animal units (AUs) for the allotment, which corresponds to 509 animal unit months (AUMs)[1]. Cattle would be distributed yearlong on the allotment. The allotment is currently in the "M" (Maintain) management category.

There would be basically no change from current livestock management as conducted by the permittee, or to existing range improvements already in place. Future projects or activities identified by the permittee or the BLM could still be considered for implementation. Rangeland monitoring would continue on the allotment and changes to livestock management would be made if necessary. If new information surfaces that livestock grazing is negatively impacting other resources, action would be taken to mitigate those impacts.

B. BLM Preferred Alternative - Modified Livestock Management

Permitted use would be the same as described under the Proposed Action. Livestock management would generally be left to the discretion of the permittee, with the following additional management actions which address riparian area concerns.

Alternative B focuses on the health of the Pecos River floodplain and associated riparian and aquatic habitat as part of the overall rangeland health considerations for the allotment. This alternative would incorporate the following terms and conditions into the permit:

- Implement the Cooper-Smith cooperative management plan (CMP) to include seasonal use of the riparian area along the Pecos River. Initiation of the plan would begin upon issuance of the permit. The plan would include rangeland health objectives which reflect floodplain,

[1] For a cattle operation, an animal unit (AU) is defined as one cow with a nursing calf or its equivalent. An animal unit month (AUM) is the amount of forage needed to sustain that cow and calf for one month.

riparian and wildlife habitat concerns. Through consultation, coordination and cooperation between participants, the plan could be amended or supplemented by mutual agreement.

The following types of projects are considered in the CMP:

- Construction of several miles of new fence to create new pastures, including a riparian pasture along the Pecos River
- Maintenance of several livestock water sources and watering facilities
- Implementation of a rest-rotation system for livestock grazing
- Vegetation treatments for mesquite and salt cedar
- Establishment of additional monitoring sites, including riparian area sites

- Re-categorize Allotment 65007 from an "M" Category to an "I" (Improve) Category.

C. No Grazing Permit Alternative

Under this alternative a new grazing permit would not be issued for Allotment 65007. No grazing would be authorized on federal land on this allotment under this alternative.

III. AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

A. General Setting

The allotment is located about 33 miles northwest of Roswell via Highway 70 and then Aztec County Road. It is situated on the east side of the Pecos River. The allotment is located entirely in Chaves County.

The Pecos River flows north-to-south through a broad alluvial valley on the western portion of the allotment. The area east of the river rises from the valley floor to low terraces that are dissected by numerous draws. Crockett Draw is the major drainage dissecting high terraces to the east. Elevations range from 3,625 feet along the river to 3,900 feet on the uplands to the west.

The climate is semi-arid with normal monthly temperatures ranging from a minimum of 19°F in January to a maximum of 95°F in July at Bitter Lake National Wildlife Refuge (Owenby and Ezell 1992). Observed minimum and maximum temperatures were -22°F and 113°F, respectively (Kunkel 1984). Average annual precipitation is 11.6 inches, primarily as rainfall. Annual precipitation has ranged from 3.11 inches to 21.08 inches (Kunkel 1984).

Public lands on the allotment provide benefits for other users, as well as the permittee. These uses include recreation (e.g., hunting and wildlife viewing). Oil and gas development has occurred.

The allotment is considered riparian because of its 3.3 miles of riparian habitat along the Pecos River, 1.5 miles of which are on public land. Riparian-wetland areas are directly influenced by

permanent free water, whether at the surface or in the subsurface. Compared to adjacent upland sites, the riparian area has a greater amount and diversity of vegetation. The diversity of plant species and availability of water makes riparian areas prime wildlife habitat.

Though the riparian areas along the river have tremendous resource values, they have been altered by the regulation of river flows by upstream reservoirs, especially Lake Sumner. Durkin et al. (1994) point out that the lack of high flows and channel entrenchment have led to significant changes to the extent, character, and condition of the riparian/wetland community. The U.S. Fish and Wildlife Service (1997) also has found the alteration of flow patterns to be a principal threat to the Pecos bluntnose shiner.

Reservoir releases are controlled by the Bureau of Reclamation, and are largely driven by irrigation demands. Management of riparian areas on the allotment by the BLM and the permittee will be within the constraints imposed by the regulation of river flows.

B. Affected Resources

The following resources or values are not present or would not be affected by the authorization of livestock grazing on Allotment 65007: Cultural Resources, Native American Religious Concerns, Prime or Unique Farmland, Minority/Low Income Populations, Hazardous or Solid Wastes, Wild and Scenic Rivers, and Wilderness. Affected resources and the impacts resulting from livestock grazing are described below.

1. Livestock Management

Affected Environment

The allotment has been permitted to be grazed yearlong by cattle. The permit authorized 103 AUs, and stated that grazing will be in accordance with a 1996 livestock grazing permit. Grazing is by a cow/calf operation. Currently, the allotment is grazed yearlong without a rest-rotation system. Livestock are managed in three herds over entire the allotment which is currently run as one large pasture.

The total acreage of the allotment is approximately 7,393 acres. The allotment includes approximately 3,100 acres of federal land, 743 acres of state land, and 3,550 acres of private land, of which 420 acres are uncontrolled by the permittee (i.e., not owned by the permittee, but not fenced apart from the allotment). The public range forms a mosaic throughout the allotment with the largest blocks in Smith Pasture. Two reaches of public land are found along the Pecos River in what was known as the North Hughes and Hughes Pasture. They have not been managed as separate pastures for years. These two pastures also include the breaks between the uplands and the Pecos River floodplain.

The primary pastures for this EA, and based upon implementation of the CMP which prescribes the establishment of pastures for rest-rotation grazing scheme, are the River Pasture, North Hughes,

South Hughes and Smith Pasture.

Table 1. Summary of Pastures		
Pasture Name	Acres*	Pasture Description
River	900	Pecos River and majority of floodplain; mixed BLM, private and state land
North Hughes	2400	Uplands; breaks east of river, portion of floodplain; mixed BLM, private and state land
South Hughes	2300	Uplands; breaks east of river, portion of floodplain; mixed BLM and private land
Smith	1800	Uplands; west of river; mixed BLM, private and state land
Allotment Total	7,400	The general topography is rolling uplands grading into breaks east of the river, the floodplain, the Pecos River.

* Approximate acreage for proposed pastures

In 1985, Allotment 65007 was place in the "M" Category. Categorization was based on rangeland monitoring studies established by the BLM.

Since 1981, ecological condition, as shown by the data collected from 1981 through 1999, indicate a change from 50 to 55, and is currently in a mid seral ecological condition (BLM 2000). The allotment would be changed from the I-category to allow for potential range and wildlife projects in the future, and to recognize riparian-wetland resource concerns.

Range improvements for the management of livestock include four earthen tanks, three corrals, two drinking troughs with associated pipelines, one old irrigation well on private land, boundary fences, and old pasture fences. The majority of the range improvements are privately owned. Wire water gaps and drops that span the channel prevent cattle from moving off the allotment by trailing along, or within, the river channel. However, some cattle may move off the allotment, or onto the allotment from adjacent ranches, during a period when gaps are down due to flood events.

There is one historical spring location on the allotment based on USGS topographic maps located in Crockett Draw. Use of the spring as water sources is not crucial due to its location, other developed waters and the Pecos River.

Treatments for mesquite, broom snakeweed, or goldenrod have not been conducted on the allotment to date.

Goldenrod, a poisonous plant to cattle during the dormant season (frost to greenup), is found in scattered areas in the bottomlands. Typically, livestock operators will pull off cattle during this time of year to prevent poisoning. Mechanical control of goldenrod has been conducted by the permittee

and is not a widespread problem in River Pasture.

Environmental Impacts

Under the Proposed Action, livestock would continue to graze public lands within the allotment. The allotment would remain as one large single-pasture with livestock freely herding and moving throughout the rangeland. Water developments would remain the same. Livestock management would be left to the discretion of the permittee. There would be no impacts to the current livestock grazing management scheme. The river grazing lands would continue to provide forage during dry periods when it is unavailable in the uplands. When in the pasture, livestock will use the upland sites but naturally congregate in the bottomlands because of the availability of food, water and shade. Livestock depend heavily on the Pecos River as a water source when down in the bottomlands.

Under Alternative B, livestock grazing on public lands would be more intensively managed. Through implementation of the CMP, the addition of four pastures would allow for livestock management flexibility so that alternating pastures receive adequate rest to maintain vegetation resources. The number of livestock and time spent in each pasture would be determined by available forage and by the production capability of the pastures. Livestock management would be left to the discretion of the permittee who has coordinated with the BLM to develop and implement the new grazing system.

Generally, pastures would be grazed six to seven months out of the year, allowing for either yearlong rest or growing season rest in the ungrazed pastures. Annual rest-rotation schemes for the allotment would depends on precipitation and forage production.

The CMP would prescribe seasonal use of River Pasture. The new River Pasture would be annually grazed by 30 head of livestock during the growing season (early spring to late fall).

Livestock would be deferred as necessary in pastures that receive vegetation treatments. Rangeland monitoring could become more intense to include additional vegetation monitoring, actual use figures and precipitation information.

Under Alternative C, there would be no livestock grazing authorized on public lands. The public lands would have to be fenced apart from the private lands or livestock would be considered in trespass if found grazing on public lands (43 CFR 4140.1(b)(1)). The expense of fencing would be borne by the private landowner. Range improvements on public land would not be maintained.

Cumulative impacts of the grazing and no grazing alternatives were analyzed in *Rangeland Reform '94 Draft Environmental Impact Statement (BLM and USDA Forest Service 1994)* and in the *Roswell Resource Area Draft RMP/EIS (BLM 1994)*. The no livestock grazing alternative was not selected in either document.

2. Vegetation

Affected Environment

The allotment is comprised of several vegetation community types arranged in a mosaic over the unit: (1) Grassland; (2) Mixed Desert Shrub; (3) Drainages, Draws and Canyons; (DDC) and (4) Riparian/Wetland. The allotment is being characterized as a riparian allotment because of its proximity to the Pecos River. Riparian vegetation, primarily found within the floodplain of the river, is discussed in the Riparian/Wetland section of this environmental assessment.

Grasslands are intermixed with all community types. Alkali sacaton is common in the gyp uplands, and bottomlands where it is interspersed with saltcedar and scattered cottonwood. Tobosa is dominant on sandy loam soils. Several upland grassland sites have a mesquite or broom snakeweed shrub component. Blue grama is primarily found on loamy soils and black grama on gravelly soils.

The Mixed Desert Shrub community is found primarily on the uplands and rough breaks above the bottomlands. This community type supports a larger percentage of shrub species than the other types. Broom snakeweed and mesquite are the common shrubs with a black grama understory.

Rangeland monitoring studies have been established in key areas within the allotment. These studies are permanent sites to track vegetation changes and to determine proper stocking rates. Soil Conservation Service range site descriptions, used in conjunction with range monitoring data collected by the BLM, serve as the basis for range trend analysis and ecological condition ratings. Range study sites contain black grama, dropseed and tobosa grass, which are the key species for range condition determinations. Trend and ecological condition are determined from monitoring data collected every five years. Information about actual use is provided by the allottee, and includes the number of cattle, period, and pastures grazed. Utilization, production, and climatic studies are conducted by BLM specialists. Range condition for the pastures in 1999 are shown in Table 2.

Table 2. 1999 Range Condition By Pasture

Pasture	Rating[2]
North Hughes	63.84 (LATE)
Hughes	46.25 (MID)
Smith	69.07 (LATE)
Hughes Trap	40.81 (MID)

The rating for River Pasture was determined prior to the development of additional pastures (Upper, Middle and Lower) for rest rotation as previously described under Livestock Management. Additional monitoring sites are needed for the new pastures and for bottomland range sites. Refer

[2] The rating is the percentage of the plant community that is climax for the range site at the time of monitoring.

to the Soils section for additional information on range sites.

General objectives or guidelines for each vegetation community (except for riparian/wetlands) are described in the Roswell Approved RMP and Record of Decision (BLM 1997) and the Roswell Draft RMP/EIS (BLM 1994). Table 3 summarizes the general vegetation resource objectives and monitoring data averages from 1981 to 1999.

Table 3. General Vegetative Community Objectives
(Monitoring Data Averages from 1981-99)

Component	Grassland		Mixed Desert Shrub	
	Percent Cover	Vegetative Cover by Percent Composition	Percent Cover	Vegetative Cover by Percent Composition
Grasses	**15 - 52** (14)	**30 - 85** (71)	**11 - 28** (15)	**55 - 75** (70)
Forbs		**10 - 15** (3)		**10 - 20** (9)
Shrubs	**3 - 12** (6)	**1 - 10** (25)	**6 - 15** (5)	**15 - 20** (21)
Trees		--		**1 - 10** (0)
Bare Ground	**14 - 60** (51)	--	**10 - 40** (60)	--
Small/Large Rock	**0 - 30** (<1)	--	**15 - 35** (4)	--
Litter	**8 - 44** (29)	--	**1 - 12** (16)	--

Environmental Impacts

Under the Proposed Action, grassland vegetation, primarily the key grass species in each range site, would continue to be grazed and trampled by livestock in all pastures. Annual seasonal impacts to bottomland plant species would continue in the River Pastures.

The Mixed Desert Shrub vegetation community found on the breaks would reflect slight vegetation use because primary forage species are not well represented in these drier areas, and livestock grazing in the pasture is of relatively short duration.

Upland sites would reflect an upward ecological condition trend at the existing permit level due to the recent addition of pastures included in the rest-rotation system. Some grassland areas in Smith Pasture would remain static due to the high composition of mesquite. In the long term, upland vegetation would continue to improve in all pastures from the implementation of a rest-rotation system.

Under the Proposed Action and Alternative B, range monitoring data indicate that the vegetation is sustainable to meet multiple resource requirements and forage at the permitted use level. Data in Table 3 indicate that livestock grazing is compatible with vegetation cover and composition objectives. In addition to the upward trend in ecological condition, monitoring data show the

vegetative resources have been improved and sustained over a number of years since monitoring began in 1982.

Under Alternative B, bottomland and riparian vegetation in the River Pastures would improve with a rest period. Improvement to riparian vegetation would be tempered by the high composition of saltcedar until saltcedar control measures are implemented. A long-term upward trend in ecological condition for all community types is expected from continued implementation of a best-pasture, rest-rotation system, in conjunction with proposed vegetation treatments.

Under Alternative C, no impacts to vegetation resources would occur on public lands from authorized livestock grazing. Vegetation cover would increase over the long term in some areas. Grasslands in the uplands would increase in cover and composition, but composition would be tempered by mesquite somewhat dominating the shrub component. Alkali sacaton in the bottomlands would, in the short term, increase in cover and composition but would then taper off in the long term, becoming decadent from the lack of standing vegetation removal by grazing. Alkali sacaton composition would also be tempered by saltcedar dominating certain areas of the bottomlands.

3. Soils

Affected Environment

Soil types serve as a basis for the development of range sites which describe the vegetation site potential. Range site descriptions used in this analysis are from the Soil Conservation Service Technical Guides for New Mexico. The allotment is comprised of five ecological sites. Range sites grade into one another over the landscape in a mosaic pattern. Table 4 depicts the general range site for each pasture.

Table 4. Summary of Predominant Range Sites

Range Site Name(s)	Pasture Name
Gravelly SD-3	North Hughes
Sandy Loam CP-2	Hughes
Sandy SD-3	Smith
Sandy Loam CP-2	Hughes Trap

The *Soil Survey of Chaves County, New Mexico, Northern Part (USDA Soil Conservation Service 1983)* was used to describe and analyze impacts to soils. Soil map units represented on the allotment include: (1) Ustifluvents on the floodplains adjacent to the

river; (2) Glendale-Pecos-Harkey association on the bottomland; (3) Holomex-Gypsum land-Alama, dry complex on the breaks east of the river; (4) Latom-Rock outcrop-Philder comlex on terraces north of Crockett Draw; and (5) Ratliff-Redona association on the uplands on the east side of the allotment.

Generally, the soils are derived from calcareous alluvium with some residuum and eolian deposits also present. The soils are typically deep and well-drained, with surface textures ranging from clay loam to loamy fine sand. Runoff is medium. The water erosion hazard is moderate, and the wind erosion hazard is high.

Environmental Impacts

Under either the Proposed Action or Alternative B, livestock would remove some of the cover of standing vegetation and litter, and compact the soil by trampling. If livestock management is inadequate, these effects could be severe enough to reduce infiltration rates and increase runoff, leading to greater water erosion and soil losses (Moore et al. 1979, Stoddart et al. 1975). Producing forage and protecting the soil from further erosion would then be more difficult. The impacts of removing vegetation and trampling would be greatest in areas of concentrated livestock use, such as trails, waters, feeders, and shade.

Soils on the allotment are highly vulnerable to wind erosion. Removal of the vegetative cover increases the exposure of soils to the erosive force of wind. Monitoring data indicate, however, that the current level of grazing is sustainable, and should maintain an adequate vegetative cover to protect soils from wind erosion. Rangeland monitoring would help ensure an adequate vegetative cover to protect soils from wind or water erosion by indicating when and where changes to livestock management are needed in the future.

The level of grazing identified in the Proposed Action and Alternative B would continue to maintain an adequate ground cover for protection and development of the soils. The percentage of bare ground and rock fall within the parameters established by the Roswell RMP for the grassland vegetation community but is higher for bare ground in the Mixed Desert Shrub community.

Under the No-Grazing Alternative, any risk of overgrazing would be eliminated. However, removing grazing animals from an area where they were a natural part of the landscape could result in poor use of precipitation and inefficient mineral cycling (Savory 1988). Bare soil could be sealed by raindrop impact, and vegetation could become decadent, inhibiting new growth. Therefore, the results of no grazing could be similar to those of overgrazing in some respects.

Cumulative effects to soils from grazing on Allotment 65007 are not expected to be significant under any of the alternatives. The types of effects considered are soil erosion and sedimentation of the river.

Moore et al. (1979) explain that the best way to prevent erosion and to enhance productivity of soils is to maintain an adequate vegetative cover. Under the Proposed Action or Alternative B, ongoing

vegetation monitoring would help assure that cover is maintained or improved over time. If future monitoring shows cover to be inadequate due to livestock management, changes would be made to promote improved plant growth.

4. Water Quality

Affected Environment - Surface Water

The allotment straddles approximately 3.3 miles of the Pecos River. Of the total, 1.5 miles cross public land mostly in Chaves County. Crockett Draw, and numerous draws along the breaks drain to the river from the east. This portion of the river is in the reach from Salt Creek to Sumner Dam, which is identified as Segment 2207 by the New Mexico Water Quality Commission (WQCC).

Under the authority of the federal Clean Water Act, the WQCC (1995) designated uses for streams in New Mexico. Designated uses for Segment 2207 include fish culture, irrigation, a limited warmwater fishery, livestock watering, wildlife habitat, and secondary contact (e.g., wading).

The WQCC (1995) also established water quality standards to protect the designated uses, and directs periodic water quality assessments to ensure that standards are met. According to the New Mexico Environment Department (NMED), Segment 2207 is currently meeting the standards for all its designated uses (Hogge 1998, NMED 1998a).

Environmental Impacts - Surface Water

In general, livestock grazing is considered a potential cause of nonpoint source pollution, with sediment as the primary contaminant. Livestock grazing on the allotment, however, is not expected to be significant cause of sediment loading to the Pecos River under any management alternative.

The NMED conducted an intensive assessment of Pecos River water quality in 1997. They concluded that no water quality standards have been exceeded in the past ten years on Segment 2207 (NMED 1998a).

The NMED assessment also considered siltation and stream bottom deposits in evaluating impacts to the threatened Pecos bluntnose shiner and its habitat. The NMED cites a letter from the U.S. Fish and Wildlife Service (USFWS) that sediment conditions alone are not significant contributing factors in the ability of the bluntnose shiner to survive and reproduce. Instead, upriver reservoirs have trapped sediment and resulted in water exiting reservoirs that are "starved of sediment." Therefore, sediment loading due to livestock grazing on the allotment would not be expected to significantly affect water quality under any alternative.

Bacteria and nutrients are other potential contaminants that can be related to livestock grazing. A review of historic water-quality data did not show any evidence of bacteria contamination of the river, but elevated levels of ammonia were noted during sampling in 1986 (NMED 1998a). The ammonia level was still below the chronic standard for ammonia established by the state. Because

no exceedances of water quality standards for the Pecos River have occurred in more than ten years, livestock grazing on the allotment does not appear to have a significant impact on water quality.

Cumulative impacts to Pecos River water quality from grazing on Allotment 65007 would not be expected to be significant. The intensive assessment of the Pecos River by the NMED included Segment 2206 (Salt Creek to Rio Peñasco) immediately downstream of Segment 2207. Potential sources of pollutants in Segments 2206 and 2207 include rangelands, irrigation return flows, dairies, municipal and industrial sources, mineral development, and road construction and maintenance. Still, neither segment had a documented exceedance of any water quality standard.

Affected Environment - Ground Water

The allotment lies in the southern part of the Fort Sumner Underground Water Basin, but at the northern end of the Roswell Basin monitoring area (New Mexico State Engineer 1995, Wilkins and Garcia 1995). Ground water is found in the alluvial aquifer at depths ranging from less than 15 feet near the river, to more than 50 feet in the uplands (Wilkins and Garcia 1995). Yields of 100 gallons per minute or more are possible from the alluvium (Geohydrology Associates, Inc. 1978). Ground-water quality is generally good, though data are limited.

Environmental Impacts - Ground Water

The WQCC has the primary responsibility for ground-water quality management in New Mexico. In their most recent report on water quality in New Mexico, the WQCC (1996) did not find livestock grazing on rangelands to be an important potential source of contamination to ground water.

Wilson (1981) also presented potential sources of ground-water contamination and the relative vulnerability of aquifers in New Mexico. He identified animal confinement facilities (e.g., dairies, feedlots) as potential sources of contamination elsewhere in New Mexico, including areas in the Pecos valley downstream from the allotment. Wilson did not identify livestock grazing on rangelands, however, as an important potential source of ground-water contamination.

Livestock grazing would not be expected to have a significant impact on ground-water quality. Livestock would be dispersed over the allotment, and the soil would filter potential contaminants.

Cumulative impacts to ground-water quality from grazing on Allotment 65007 would be negligible. Grazing impacts would be insignificant when compared to other potential sources of contamination, such as mineral development and agriculture.

5. Floodplains

Affected Environment

The properties of any stream or river are due to the interaction of its channel geometry, streamflows, sediment load, channel materials, and valley characteristics (Rosgen 1996). The form and fluvial

processes of the Pecos River have been modified by the construction of dams, which have drastically altered the streamflow and sediment regimes of the river. Flooding is less frequent and less severe than under pre-dam conditions, and sediment loads have been greatly reduced (see Figure 1). As a result, the channel has become moderately entrenched, and is slightly confined by the valley.

Flow regulation with the dams has also changed the extent, character, and condition of the riparian area on the river (Durkin et al. 1994). Sediment deposition on floodplains is important for riparian succession, and seasonal flooding is required for obligate riparian vegetation.

The floodplain ranges in width from less than one-quarter mile to more than one mile on the allotment. Channel banks are generally stable, but are actively being cut in some locations. This is most likely due to entrenchment of the channel rather than disturbance associated with land use activities. The channel material is primarily a sand and gravel bed with small cobbles and silt. The stream gradient is relatively flat (0.25 percent).

For administrative purposes, the 100-year floodplain serves as the basis for floodplain management on public lands. It is based on Flood Insurance Rate Maps prepared by the Federal Emergency Management Agency (1983). The 100-year floodplain of the Pecos River covers approximately 750 acres on the allotment, including 330 acres of BLM land, 270 acres of private land, and 150 acres of State land. Current development on the floodplain consists of two-track roads and several miles of fence within the allotment. There are several federal and private oil or gas developments in the floodplain on the allotment.

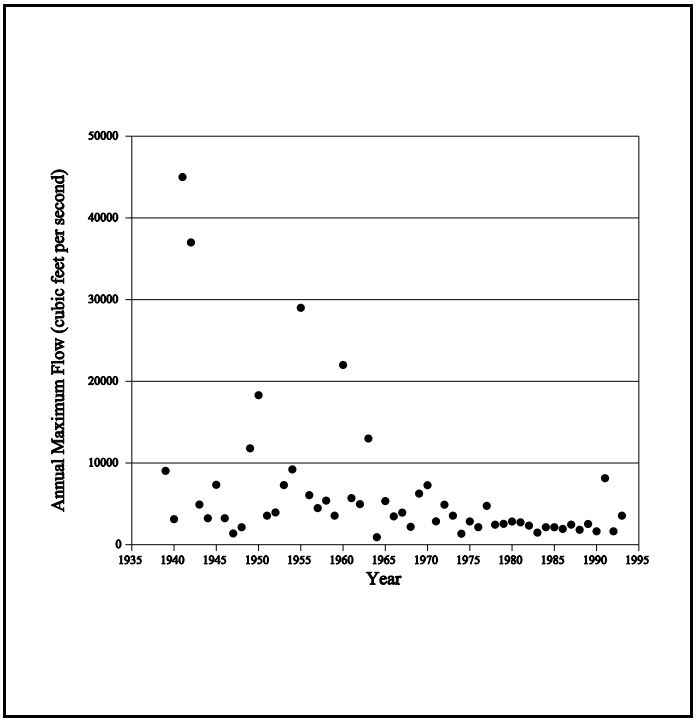

Figure 2. Annual maximum flow at USGS gage at Acme, New Mexico (08386000) for period 1939-1993. In the 25-year period 1939-1963, an annual maximum flow of 8000 cfs was exceeded nine times. In the 30-year period 1964-1993, 8000 cfs was exceeded only once (1991).

Environmental Impacts

The reduction in the frequency and magnitude of peak flows on the river would continue to be the primary influence on floodplain function. Whether or not grazing is authorized would have little additional influence.

There would be little change to the level of development on the Pecos floodplain under the Proposed Action or Alternative B. Roads and fences would continue to be used and maintained.

Under the No-Grazing Alternative, some roads could be abandoned and fences removed. Vegetation cover and diversity would probably increase somewhat. Localized impacts, such as cow trails, may revegetate over time.

Livestock grazing under the Proposed Action or Alternative B would not add to cumulative effects to the floodplain beyond the current level of development. The No-Grazing Alternative could slightly improve floodplain function because vegetation cover would increase, and some roads and fences might be removed or abandoned. The expected improvement would not be significant because current impacts are minor compared to all other activities affecting the floodplain (e.g., manipulation of water flows).

6. Riparian/Wetland Areas

Affected Environment

Riparian areas can be found along the 3.3 miles of the Pecos River (1.5 miles of public land) in the River Pastures. Within the floodplain, the riparian vegetation community is tied to landform and is influenced by flooding intervals. The land form is comprised of exposed and stabilized river bars, the floodplain, and terraces. The river channel is moderately entrenched so that bank form varies from shallow in the older meander deposition areas to vertical where the river has cut into the upper terrace.

Riparian vegetation grows more abundantly on the old point bars and shallow banks, and may or may not be found as narrow strips of green at the base of the more vertical banks. The width of the riparian area is fairly narrow. Saltcedar, an exotic species introduced for bank protection and flood control throughout the West, has invaded about 250 acres of public land within the active floodplain and riparian areas along the river, growing in patches, strips or in dense thickets. Flow regulation of the Pecos River has contributed to the entrenchment and lack of lateral movement of the river, and the lack of flooding events needed for riparian plant regeneration but favoring saltcedar invasion.

Riparian vegetation include Baltic rush, threesquare and cattail. Woody vegetation within the lower floodplain include seepwillow, coyote willow, saltcedar, cottonwood and Russian olive. Alkali sacaton, alkali muhly, and inland saltgrass are the most common grass species. Common forb species include goldenrod, ragweed, Douglas rabbitbrush, prairie sunflower, and white sweetclover. Older floodplain terraces support about 26 acres of cottonwood trees with open canopies. Adjacent upland vegetation is also found within the floodplain.

In 1992, the BLM initiated a standard method to assess the functioning condition of riparian areas (BLM 1993). The method uses an interdisciplinary team to consider the interaction of the vegetation, landform/soils, and hydrology. Assessed areas can be classified as "proper functioning condition, functional at risk (upward or downward trend) or nonfunctional."

Riparian areas are functioning properly when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high waterflows, thereby reducing erosion and improving water quality; filter sediment, capture bedload, and aid floodplain development; improve flood-water retention and ground-water recharge; develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics to provide the habitat and water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity. The functioning condition of riparian-wetland areas is a result of an interaction among geology, soil, water, and vegetation (BLM 1993).

In June 1998, a BLM interdisciplinary team assessed the riparian area on the allotment. The riparian area on public land along the river was in "proper functioning condition" as defined by the BLM (1993). Livestock were grazing the riparian area during the BLM assessment, and cow trailing and reductions in riparian vegetation were observed in limited areas.

Proper functioning condition was designed to be a quick, qualitative assessment of riparian health. However, it should not be construed as the sole measure of riparian health. Evaluating other resource values, such as watershed condition or wildlife habitat could require more detailed monitoring techniques. For example, quantitative assessments of riparian vegetation and community structure are needed to assess habitat quality for any given wildlife habitat component (e.g., browse condition for mule deer, ground cover for ground-nesting species).

Environmental Impacts

Under the Proposed Action, livestock utilization of the floodplain and associated riparian areas along the Pecos River would continue annually on a seasonal basis. The greatest vegetation impacts would occur at livestock concentration areas such as crossings, shaded areas along the river, and accessible banks and terraces. Some bank sloughing may occur from trampling. Utilization of grass species such as alkali sacaton would be heavy within the floodplain and along the river due to annual use of the area, or when upland pastures do not provide adequate forage. Livestock would then be grazed in the River Pastures. Seasonal rest would continue to maintain the vigor of riparian species, and may allow for cottonwood regeneration on the upper terrace.

Under Alternative B, livestock grazing would continue to be used as a tool to improve plant vigor. The floodplain and associated riparian vegetation would be afforded adequate rest. Alleviating annual grazing pressure would improve ground cover and help establish preferred plant species. Reducing exotic species and seasonal grazing along the river would improve the overall health of the floodplain and riparian areas. It is expected that riparian vegetation would improve in the long term.

Under Alternative C, vegetation condition within the floodplain would moderately improve and riparian vegetation would greatly improve. Improvement would continue to be limited by reductions in flood flows and existing exotic species that affect plant composition. Grasses would initially increase, but plant vigor could decline from lack of vegetation removal, making ground cover species rank. Since livestock grazing would not be permitted under Alternative C, range

improvement projects such as brush control and exotic species control would be less likely to be implemented through the range program.

7. Wildlife

Affected Environment

The allotment provides a variety of habitat types for terrestrial and aquatic wildlife species. The diversity and abundance of wildlife species in the area is due to the presence of open water, the numerous drainages interconnecting upland habitats to the Pecos floodplain, a mixture of grassland habitat and mixed desert shrub vegetation, and riparian vegetation found within the floodplain of the river.

Numerous avian species use the Pecos River during spring and fall migration, including nongame migratory birds. The Bitter Lake National Wildlife Refuge (BLNWR) is several miles downstream from the allotment, and serves as a major focal point for migratory birds (e.g., ducks, geese, sandhill cranes, waterbirds). Common bird species are mourning dove, mockingbird, white-crowned sparrow, black-throated sparrow, blue grosbeak, northern oriole, western meadowlark, Crissal thrasher, western kingbird, northern flicker, common nighthawk, loggerhead shrike, and roadrunner. Raptors include northern harrier, Swainson's hawk, American kestrel, and occasionally golden eagle and ferruginous hawk.

The Pecos River once supported a wide variety of native fish species adapted to the flow regime that existed prior to dam construction, agriculture development, and the introduction of non-native fish species. The greatest impact to fish habitat is the manipulation of water supply to meet irrigation needs. Representative fish species include the red shiner, sand shiner, Arkansas River shiner, Pecos bluntnose shiner, plains minnow, silvery minnow, plains killifish, mosquitofish, speckled chub, river carpsucker and channel catfish.

Common mammal species using the area include mule deer, pronghorn antelope, coyote, gray fox, bobcat, striped skunk, porcupine, racoon, badger, jackrabbit, cottontail, white-footed mouse, deer mouse, grasshopper mouse, kangaroo rat, spotted ground squirrel, and woodrat.

A variety of herptiles also occur in the area such as yellow mud turtle, box turtle, eastern fence lizard, side-blotched lizard, horned lizard, whiptail, hognose snake, coachwhip, gopher snake, rattlesnake, and spadefoot toad.

Environmental Impacts

Under Alternative A, livestock grazing, if not properly managed, could continue to impact wildlife habitat by potential over-utilization of vegetation that provides forage, browse and cover for a variety of wildlife species. Continued implementation of current grazing practices would not affect wildlife and habitat diversity.

Under Alternative B, livestock grazing management and range improvement projects designed with consideration for wildlife would generally enhance the quality of wildlife habitat (e.g., spring protection, bottomland rest). Vegetation condition, forage production, and habitat diversity would improve, and wildlife species distribution and abundance would increase. The construction of livestock waters in previously unwatered areas would promote increased wildlife distribution and abundance, but may potentially increase grazing pressure in those same areas. Short-term impacts of range improvement projects would be the temporary displacement of wildlife species during construction activities.

Under Alternative C, there would no longer be direct competition between livestock and wildlife for forage, browse and cover. Wildlife habitat would moderately improve. The limitation for improvement would continue to be the existing invading species component (e.g., mesquite, snakeweed) affecting plant composition. Since livestock grazing would not be permitted, range improvement projects that benefit wildlife, such as water developments, would be abandoned. New range improvement projects that would also benefit wildlife habitat, such as brush control, may not be implemented because these projects are primarily driven and funded through range improvement efforts.

8. Threatened and Endangered Species

The Pecos bluntnose shiner, Pecos gambusia, interior least tern and the Pecos sunflower are federally listed species that occur or have the potential to occur on the allotment. Federally proposed species include the Pecos pupfish. The status and presence of these species in the RFO area are discussed in the following section.

Pecos Bluntnose Shiner *(Notropis simus pecosensis)* - Federal Threatened

Affected Environment

Historically, the Pecos bluntnose shiner inhabited the river from Santa Rosa to near Carlsbad, New Mexico. Currently, the subspecies is restricted to the river from the Fort Sumner area southward locally to the vicinity of Artesia, and seasonally in Brantley Reservoir (NMDGF 1988; USFWS 1992). Routine fish community monitoring conducted by the USFWS in the river between Sumner Dam and Brantley Reservoir show the fish remains generally abundant, especially in light of cooperative efforts between the Bureau of Reclamation and the USFWS to more closely mimic natural flows in the Pecos River.

There are two designated critical habitat areas on the Pecos River within the RFO area. The first is a 64-mile reach beginning about ten miles south of Fort Sumner (Township 1 North), downstream to a point about twelve miles south of the DeBaca/Chaves County line (Township 5 South). The allotment falls within, and is located near the terminus of this reach. The second reach is from Highway 31 east of Hagerman (Township 14 South), south to Highway 82 east of Artesia (Township 17 South).

The primary threat to the Pecos bluntnose shiner appears to be the manipulation of flows in the Pecos River to meet irrigation needs, and the subsequent drying of the river channel (Hatch et al. 1985). High flows in the late winter-early spring before natural spring runoff appear to displace fish into marginal downstream habitats (including Brantley Reservoir). Cessation of reservoir releases after spring runoff and before the advent of summer rains desiccates long stretches of the Pecos River. Maintenance of water levels within the Pecos River and its tributaries is beyond the management authority of the BLM.

In addition to the manipulation flows is the threat posed by non-native fish. The introduction and establishment of species such as the Arkansas River shiner offers direct competition with the Pecos bluntnose shiner.

Livestock grazing does not appear to be a threat to the bluntnose shiner based on a review of the literature. Nor was grazing identified in the Pecos Bluntnose Shiner Recovery Plan as having the potential to adversely affect water quality, and thus the bluntnose shiner (USFWS 1992).

Environmental Impacts

Under the Proposed Action or Alternative B, livestock grazing impacts to the Pecos bluntnose shiner would be negligible. Under Alternative C no impacts from livestock grazing would occur. Based on the assessment of Pecos River water quality conducted by the NMED in 1997, it appears that the shiner would not be affected by poor water quality if a grazing permit were issued.

Section 303(d) of the federal Clean Water Act requires that the State identify those waters for which existing required pollution controls are not stringent enough to meet State water quality control standards. The State must then establish total maximum daily loads (TMDLs) for pollutants of these water-quality-limited stream segments.[3] The presence of critical habitat for the threatened Pecos bluntnose shiner raised the Pecos River to a priority one on the New Mexico 303(d) ranking system.

Segment 2207 (Pecos River from Salt Creek to Sumner Dam) had been listed for stream bottom deposits. Based on a review of historical data and their survey, however, the NMED (1998a) concluded there was no basis for conducting TMDLs on Segment 2207. The NMED (1998b) removed the segment of the Pecos River from the 1998-2000 303(d) list.

NMED's decision to remove Segment 2207 from the 303(d) list bears directly on the Biological Opinion rendered by the USFWS on the Roswell Resource Management Plan. The USFWS cited the New Mexico Water Quality Control Commission's 305(b) report in their opinion. The report identified siltation, reduction of riparian vegetation, and streambank destabilization as among the probable causes for the Pecos River in the RFO area not supporting its designated use as a warm water fishery, and identified rangeland agriculture as a probable source of the nonsupport. Just as

[3] The TMDL is defined as "the greatest loading or amount of the pollutant that may be introduced into a watercourse or stream reach from all sources without resulting in a violation of water quality standards." The TMDL includes a margin of safety.

Segment 2207 was removed from the 303(d), the next 305(b) report will no longer list the segment as water quality-limited (Hogge 1998).

Pecos Gambusia *(Gambusia nobilis)* - Federal Endangered

Affected Environment

The Pecos gambusia is endemic to the Pecos River Basin in southeastern New Mexico and western Texas. Historically, the species occurred as far north as the Pecos River near Fort Sumner, and south to Fort Stockton, Texas.

Recent records indicate, however, that its native range is restricted to sinkholes and springs and their outflows on the west side of the Pecos River in Chaves County. In spite of population declines, the species remains locally common in a few areas of suitable habitat. Populations on the BLNWR and the Salt Creek Wilderness Area constitute the key habitat of the species in the RFO area. On the refuge, the gambusia is primarily restricted to springs and sinkholes in the Lake St. Francis Research Natural Area.

Endangerment factors include the loss or alteration of habitat (e.g., periodic dewatering) and introduction of exotic fish species (e.g., mosquitofish). Potential impacts to habitat may also occur from surface disturbing activities at sinkholes or springs and their outflows.

Environmental Impacts

There would be no negative impacts to the Pecos gambusia from livestock grazing under any Alternative. No springs capable of providing yearlong habitat for the gambusia exist on BLM land within the allotment.

Under Alternative B, spring protection, saltcedar control, and some earthwork may enhance the condition of the springs to the point that they may begin flowing once again. This would be a long term positive impact on the Pecos gambusia as these sources may be considered for re-introduction sites.

Interior Least Tern *(Sterna antillarum athalassos)* - Federal Endangered

Affected Environment

The interior least tern nests on shorelines and sandbars of streams, rivers, lakes, and man-made water impoundments. Records of breeding terns in New Mexico are centered around BLNWR where the species has bred regularly since it was first recorded in 1949. BLNWR is considered "essential" tern breeding habitat in the state. Besides BLNWR, the only known nesting habitat in the RFO area is an alkali flat due north of the refuge on public lands. These are small populations with only a few nesting terns.

Sporadic observations of least terns have been recorded elsewhere in the Pecos River valley. The tern may occur on public lands in Chaves County along the river because suitable nesting habitat is found on sites that are sandy and relatively free of vegetation (i.e., alkali flats). Approximately 44 potential nesting sites are found throughout the RFO area. Other potential habitat sites are saline, alkaline, or gypsiferous playas that occasionally hold water. However, ephemeral playas do not support fish, the main staple for terns.

Specific surveys for nesting least terns have been conducted in potential habitat along the Pecos River and playas by the New Mexico Natural Heritage Program under a Challenge Cost Share project. No other nesting terns have been found to date.

Environmental Impacts

There would be no impacts to the Interior least tern under any Alternative. Recent habitat surveys found no breeding populations in potential nesting habitat that occurs as sand bars within the river channel.

Pecos (Puzzle) Sunflower *(Helianthus paradoxus)* - Federal Threatened

Affected Environment

The Pecos sunflower is found along alkaline seeps and cienegas of semi-desert grasslands and short-grass plains (4,000-7,500 ft.). Plant populations are found both in water and where the water table is near the ground surface.

In the RFO area, the sunflower is found in only a few areas outside of the BLNWR. In 1994, a new population was found growing on the margins of Lea Lake and its outflow at Bottomless Lakes State Park. Lloyd's Draw, east of the Pecos River, has the only known Pecos sunflower population on BLM land, which only became evident following a prescribed fire. Potential habitat also occurs on BLM land within the Overflow Wetlands Wildlife Habitat Area.

Potential habitat for the sunflower occurs on the allotment as low lying areas where the water table is near the ground surface. The low lying areas are not necessarily along the existing river channel, but in old channel courses and oxbows. These areas are now invaded by saltcedar growing in dense stands, which may prevent the viability of the Pecos sunflower. Other potential sites include a few springs on the east side of the river. No Pecos sunflower populations have been found on the allotment to date. Endangerment factors include dewatering of riparian or wetland areas where the sunflower is found, surface disturbing activities, and excessive livestock grazing.

Environmental Impacts

Under the Proposed Action and Alternative C, potential habitat would remain in unsuitable condition for the Pecos sunflower due to saltcedar. Under Alternative B, livestock grazing management and associated habitat improvement projects, including spring protection and

enhancement, would increase potential habitat for the sunflower. Populations of the sunflower may become established following saltcedar control in certain areas, if seeds are available in the soil.

Pecos Pupfish *(Cyprinodon pecosensis)* - Federal Proposed

Affected Environment

The Pecos pupfish is found in a variety of habitats from saline springs and gypsum sinkholes to desert streams with highly fluctuating conditions. Pecos pupfish populations are most dense in the gypsum sinkholes on BLNWR. The species apparently thrives in these saline waters that support few other fish species. It occasionally occupies fresher waters in the Pecos River, but is uncommon in such habitats. In the river, this pupfish is most often found in backwater areas and side pools that lack sunfish or other predators (NMDGF 1988; Sublette et al. 1990; NMDGF 1997). The pupfish also inhabits the Overflow Wetlands Wildlife Habitat Area adjacent to the Bottomless Lakes State Park.

Endangerment factors include habitat loss caused by groundwater pumping and channel alterations, hybridization and/or replacement by the sheepshead minnow, and predation by non-native fish species. Potential impacts to habitat may occur from surface disturbing activities at or near springs or seeps. Other activities that severely impact habitat are not within the purview of the BLM, such as transportation and utilization of water associated with agricultural irrigation. Livestock grazing may impact springs or seeps but most of these sites have been protected with exclosures.

Environmental Impacts

Under the Proposed Action or Alternative B, livestock grazing impacts to the Pecos pupfish would be negligible. Under Alternative C no impacts from livestock grazing would occur. The conclusions regarding riverine habitat are based on the same information used for the Pecos bluntnose shiner. Suitable sinkhole or spring habitat does not exist on the allotment.

9. Visual Resources Management

Affected Environment

The entire allotment is in a Class III area for visual resources management. In a Class III area, contrasts to the basic elements caused by a management activity may be evident and begin to attract attention in the landscape. The changes, however, should remain subordinate to the existing landscape.

Environmental Impacts

The basic elements of the landscape would not change within the allotment under any management alternative. Potential impacts to visual resources would be analyzed and mitigated as allotment management activities are proposed in the future.

10. Recreation

Affected Environment

A network of roads provide access to public, private, and state lands within the allotment, although legal public access is limited. Access to most of the private and state lands is currently controlled by fences and locked gates. The BLM has designated off-highway vehicle use on public lands the area as limited to existing roads and trails. Access is generally good on the west side of the Pecos River and poor on the east side.

The allotment provides habitat for numerous game species including desert mule deer, pronghorn antelope, mourning dove and scaled quail. Predator and feral pig hunting may occur on the allotment, as well as trapping for predators or furbearers. The river is also accessible to the public for fishing or minnow seining from the west but lands east of the river are difficult to access by vehicle.

General sightseeing, wildlife viewing and photography are nonconsumptive recreational activities that may occur. Rock collectors find various minerals unique to the area, such as Pecos diamonds.

Environmental Impacts

Under the Proposed Action and Alternative B, there would be no direct negative impacts to recreational activities on public lands. There could be potential conflicts between recreationists and ranching activities, depending on hunting seasons and livestock use in a given pasture. Vandals could damage to range improvements by vandals.

Under Alternative B, game and non-game wildlife species could realize long-term benefits through the improvement of habitat. It is expected that hunter success and wildlife viewing opportunities would be enhanced.

Under Alternative C, there would be no conflicts with ranching activities and recreational use on public lands. Success of hunts and nonconsumptive opportunities would remain the same or slightly improve. Vandalism could still occur to range improvements.

11. Cave and Karst

Affected Environment

This allotment is located within a designated area of medium Cave or Karst Potential. A complete significant cave or karst inventory has not been completed for the public lands located in this grazing allotment. Presently, no known significant caves or karst features have been identified within this allotment.

Environmental Impacts

Since no caves have been identified on this grazing allotment, grazing would not affect the karst resources. If at a later date, a significant cave or karst feature is located on public lands within this allotment, that cave or feature may be fenced to exclude livestock grazing and Off-Highway Vehicle Use.

12. Air Quality

Affected Environment

The allotment is in a Class II area for the Prevention of Significant Deterioration of air quality as defined by the federal Clean Air Act. Class II areas allow a moderate amount of air quality degradation.

Air quality in the region is generally good, with winds averaging 10-16 miles per hour depending on the season. Peak velocities reach more than 50 miles per hour in the spring. These conditions rapidly disperse air pollutants in the region.

Environmental Impacts

Dust levels resulting from allotment management activities would be slightly higher under the Proposed Action or Alternative B than Alternative C. The cumulative impact on air quality from the allotment would be negligible compared to all pollution sources in the region.

IV. CUMULATIVE IMPACTS

A cumulative impact is defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7).

The analysis of cumulative impacts is driven by major resource issues. The action considered in this environmental assessment (EA) is the authorization of livestock grazing on Allotment 64038 and 64538, and the major issues include:

(1) threatened and endangered species associated with the Pecos River, primarily the Pecos bluntnose shiner,
(2) Pecos River water quality, and
(3) riparian/wetland habitat within the Pecos River floodplain.

The incremental impact of issuing a grazing permit on these resources must be analyzed in the context of impacts from other actions. Other BLM actions that could have impacts on the identified

resources include: livestock authorization on other allotments along the Pecos River; oil and gas activities on the river floodplain and on the uplands; rights-of way crossing the river; and recreation use, particularly off-highway vehicles.

All authorized activities which occur on BLM land can also take place on state and private lands. In addition, significant impacts could result from reservoir management and the manipulation of river flows, and agricultural activities (e.g. dairies, crop production, and irrigation diversions and return flows).

Many of the actions which could contribute to cumulative impacts have occurred over many years. Impacts from open-range livestock grazing in the last century are still being addressed today. Sumner Dam, the principal structure controlling river flows in this reach, was built in 1937. Major irrigation projects were begun in the 19th century, and oil and gas activities began in the early part of the 20th century. All these activities are still occurring today, and are expected to continue into the foreseeable future to some degree.
The Proposed Action or Alternative B would not add incrementally to the cumulative impacts to threatened and endangered species, or to Pecos River water quality. The conclusion that impacts to these resources from grazing authorization would not be significant are discussed in detail in Section III of the EA. Incremental impacts to riparian/wetland habitat from livestock grazing are possible, however. Under Alternative B, negative incremental impacts would be expected to be less than under the Proposed Action because the allotment would be more intensively managed. These impacts are also discussed in Section III of the EA.

If the No-Grazing Alternative were chosen, some adverse cumulative impacts to riparian/wetland habitat would be eliminated, but others would occur. Grazing would no longer be available as a vegetation management tool, and BLM lands within the allotment would be less intensively managed. For example, alkali sacaton in the bottomlands would likely become decadent without livestock impact, and control of exotic plant species such as saltcedar would be less likely without allotment management.

V. MITIGATION MEASURES

Vegetation monitoring studies will continue if a new grazing permit were issued under the Proposed Action or Alternative B. Changes to livestock management would be made if monitoring data showed adverse impacts to the vegetation.

If new information surfaces that livestock grazing is negatively impacting other resources, action will be taken at that time to mitigate those impacts.

VI. RESIDUAL IMPACTS

The area has been grazed by livestock since the early part of the 1900s, if not longer. Recent vegetative monitoring studies have shown that grazing is sustainable at the current permitted

numbers of animals. If the mitigation measures are enacted, then no residual impacts would be caused by implementation of the chosen management alternative.

VII. FUNDAMENTALS OF RANGELAND HEALTH

The fundamentals of rangeland health are identified in 43 CFR §§4180.1 and pertain to watershed function, ecological processes, water quality and habitat for threatened and endangered (T&E) species and other special status species. Based on the available data and professional judgment, the evaluation by this environmental assessment indicates that the conditions identified in the fundamentals of rangeland health exists on the allotment.

VIII. BLM TEAM MEMBERS

Dan Baggao, Jim Schroeder, John Spain, Joe Torrez, Irene Gonzales-Salas, Jerry Dutchover, Rand French, Pat Flannery, Tim Kreager and Howard Parman.

IX. PERSONS AND AGENCIES CONSULTED

Chaves County Public Land Use Advisory Committee
Forest Guardians
Mr. Carl Cooper - Permittee
New Mexico Department of Game and Fish
New Mexico Energy, Minerals, and Natural Resources Department
- Forestry and Resource Conservation Division
New Mexico Environment Department - Surface Water Quality Bureau
New Mexico State Land Office
U.S. Fish and Wildlife Service - Ecological Services
U.S. Fish and Wildlife Service - Fishery Resources Office

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FINDING OF NO SIGNIFICANT IMPACT AND RATIONALE

EA No. NM-060-00-045

Finding of No Significant Impact:

I have reviewed this environmental assessment for Allotment 65007, including the explanation and resolution of any potentially significant environmental impacts. I have determined that the proposed action and alternatives will not have significant impacts on the human environment, and that preparation of an Environmental Impact Statement (EIS) is not required.

Rationale for Recommendations:

The proposed action and alternatives would not result in any undue or unnecessary environmental degradation. The proposed action will be in compliance with the Roswell Approved Resource Management Plan and Record of Decision (October 1997).

_____ _____

T.R. Kreager Date
Assistant Field Office Manager - Resources